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WEEKLY REPORT

For Week Ending May 22, 1971

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CONTENTS

EPIDEMIOLOGIC NOTES AND REPORTS

TYPE A BOTULISM FROM WOUND INFECTION
Palo Alto, California

On April 18, 1971, a 7-year-old boy from Palo Alto, California, sustained a compound fracture of his left ulna when he fell from a tree. He was hospitalized that day for reduction under axillary block. Incision and irrigation of the fracture revealed a clean wound, and the patient was treated with oral penicillin and intramuscular streptomycin. On April 20, he experienced pain in his arm and a temperature of 102°F. Diplopia, dysphonia, and peri-oral numbness developed 2 days later, followed by progressive bulbar palsy with descending paralysis. Pneumonitis developed, and a tracheostomy was performed 8 days after admission; a volume respirator was used.

Serum obtained from the child on April 27 was inoculated into mice, and it demonstrated toxicity which was identified as type A botulinum toxin. At that time, his wound was re-opened, but it showed no gross evidence of infection. A gram stain was negative except for some neutrophiles, but cultures revealed mixed organisms including *Clostridium botulinum* type A. His wound was left open and exposed to high concentrations of oxygen. The patient was treated with high doses of intravenous penicillin, and on April 27 and 28, received bivalent AB and trivalent ABE botulinum antitoxin. Treatment with guanidine is continuing, and the patient has

(Continued on page 184)

TABLE I. CASES OF SPECIFIED NOTIFIABLE DISEASES: UNITED STATES
(Cumulative totals include revised and delayed reports through previous weeks)

DISEASE	20th WEEK ENDED		MEDIAN	CUMULATIVE, FIRST 20 WEEKS		
	May 22, 1971	May 23, 1970	1966 - 1970	1971	1970	MEDIAN 1966 - 1970
Aseptic meningitis	73	29	29	945	554	553
Brucellosis	2	12	6	54	72	72
Diphtheria	2	14	8	68	168	64
Encephalitis, primary: Arthropod-borne & unspecified	92	20	20	500	404	402
Encephalitis, post-infectious	11	19	19	129	178	212
Hepatitis, serum	124	146	87	3,302	2,639	1,539
Hepatitis, infectious	1,328	1,093	946	24,251	21,827	16,913
Malaria	57	67	52	1,463	1,340	839
Measles (rubeola)	3,011	1,950	1,825	50,905	27,955	27,957
Meningococcal infections, total	72	38	64	1,316	1,297	1,398
Civilian	69	37	58	1,139	1,167	1,258
Military	3	1	6	177	130	140
Mumps	4,085	2,580	- - -	74,708	55,030	- - -
Poliomyelitis, total	–	1	1	6	3	8
Paralytic	–	1	1	4	3	7
Rubella (German measles)	1,805	2,329	2,329	28,191	38,698	30,714
Tetanus	2	6	2	32	36	42
Tularemia	2	4	2	31	35	54
Typhoid fever	7	5	7	98	83	105
Typhus, tick-borne (Rky. Mt. spotted fever)	8	11	8	25	32	32
Rabies in animals	77	66	68	1,802	1,322	1,544

TABLE II. NOTIFIABLE DISEASES OF LOW FREQUENCY

	Cum.		Cum.
Anthrax:	–	Psittacosis:	12
Botulism:	1	Rabies in Man:	1
Leprosy: Tex.-1	48	Rubella congenital syndrome:	28
Leptospirosis:	12	Trichinosis:	29
Plague:	–	Typhus, murine:	3

BOTULISM — *(Continued from front page)*

shown definite improvement from bulbar and peripheral paralyses.

The patient's symptoms did not develop until 4 days after his admission, and in that time he had eaten only hospital food. His dietary history in the days preceding his admission were unremarkable; he ate the same foods his parents did, and they remained well. The boy had not been exposed to home canned food. Exposure to contaminated food, therefore, does not appear to have been the source of the boy's botulism.

(Reported by Jeffrey Balfus, M.D., pediatric intern, Don L. Bishop, M.D., attending physician, Jack Remington, M.D., and George Perlstein, M.D., consulting physicians, Stanford University Hospital, Palo Alto, California; Mary H. Clark, M.D., Deputy Director of the Santa Clara County Health Department; Thaddeus Midura, Ph.D., Research Microbiologist, Genevieve Nygaard, B.A., Associate Microbiologist, Ronald Wood, Ph.D., Chief, Microbial Diseases Laboratory, and S. Benson Werner, M.D., Medical Epidemiologist, Infectious Disease Element, California State Department of Public Health.)

Editorial Note

There have been five previously reported cases of botulism from a wound infection in the United States. The first case was reported in 1945 *(1)*. Three other cases, all fatal, were reported in 1951 *(2, 3, 4)*; two occurred in California. All three were due to *C. botulinum* type A, and each wound was grossly purulent. In two cases, the wounds were also infected with other organisms. The fifth case was reported in 1968 (MMWR, Vol. 17, No. 22). In this case, signs and symptoms compatible with botulism developed 7 days after the patient suffered a compound fracture. The wound never showed signs of infection, and attempts to isolate *C. botulinum* were unsuccessful. Toxin could not be demonstrated in the patient's serum. He recovered following treatment with polyvalent ABEF botulinum antitoxin.

Wound infection should be considered as a cause of clinical botulism in cases where foods cannot be incriminated.

References

1. Hall IC: The occurrence of *Bacillus botulinus*, types A and B, in accidental wounds. J Bact 50:213-217, 1945

2. Thomas CG, Keleher MF, McKee AP: Botulism, complication of *Clostridium botulinum* wound infection. A.M.A. Arch Path 51:623-628, 1951

3. Hanpson CR: Case of probable botulism due to wound infection. J Bact 61:647, 1951

4. Davis JB, Mattman LH, Wiley M: *Clostridium botulinum* in a fatal wound infection. JAMA 146:646-648, 1951

TRANSFUSION-INDUCED MALARIA — Texas

Case 1 — On Jan. 14, 1971, 1 unit of whole blood was administered to a 19-year-old girl at a military hospital in Texas to replace acute blood loss after severe injuries suffered in an automobile accident. Her condition subsequently improved, and she was discharged from the hospital. On January 31, however, she had onset of fever and chills and was readmitted to the hospital on February 3. On admission, a peripheral blood smear revealed parasites of *Plasmodium vivax*. The patient made an uneventful recovery following treatment with chloroquine phosphate.

The blood had been donated on January 8 by a 24-year-old serviceman who had returned from Vietnam in January 1969. He had not experienced malaria either while overseas or after his return to the United States. While in Vietnam and twice after his return, however, he had experienced self-limited episodes of fever and chills. He said he had taken the prescribed chloroquine-primaquine combination weekly, both while in Vietnam and for 8 weeks after his return. He denied any subsequent travel outside the United States, receipt of blood or blood products, and the use of common syringes. In February 1971, although he was asymptomatic, *Plasmodium* species parasites were seen on a peripheral blood smear. His serum, when tested with the indirect fluorescent antibody (IFA) test for malaria, gave an end-point dilution titer of 1:16 against *P. vivax* antigen only.

Case 2 — On Jan. 28, 1971, a 45-year-old man received 5 units of whole blood while undergoing open heart surgery in a veterans hospital in Texas. After surgery, he had persistent fever, weakness, and anemia. On February 20, *P. falciparum* parasites were seen on a peripheral blood smear, and the patient was treated with quinine, pyrimethamine, and a sulfonamide.

The patient gave no history of malaria, recent foreign travel, or use of shared syringes. Three of the 5 units of blood were obtained locally, and the donors gave no history of either malaria or recent foreign travel. The remaining two units were obtained by a blood collection agency in Columbus, Georgia, from two servicemen stationed at Ft. Benning, Georgia. One of the donors, a 20-year-old man, had served with the army in Vietnam from September 1969 to September 1970 and had donated blood only once, in January 1971. He denied having had malaria or malaria-like illnesses either while in Vietnam or after his return to the United States. His peripheral blood smear was negative for malaria parasites, but his serum, when tested with the IFA test for malaria, gave end-point dilution titers of 1:1,024 against *P. falciparum* antigen and 1:256 against *P. vivax* and *P. malariae* antigens. The other serviceman had never traveled outside the United States, and his blood tests were negative.

(Reported by Col. Gerald Champlin, MC, U.S. Darnall Army Hospital, Fort Hood, Texas; John A. Armstrong, M.D., attending physician, Dallas Veterans Hospital, Texas; James T. Wheeler, M.D., Director, Community Blood and Plasma Services, Dallas, Texas; R. F. Sowell, Jr., M.D., Medical Consultant, M. S. Dickerson, M.D., Chief, Communicable Disease Services, Texas State Department of Health; Capt. James McNair, MC, Preventive Medicine Officer, Ft. Benning, Georgia; the Laboratory Division, CDC; and an EIS Officer.)

STAPHYLOCOCCAL FOODBORNE OUTBREAK
Lewisport, Kentucky

On March 21, 1971, an outbreak of staphylococcal foodborne illness involving 350 persons occurred at a benefit luncheon held at a community center in Lewisport, Kentucky. Approximately 168 (48 percent) of the persons became ill within 8 hours, and 100 required hospitalization. Diarrhea, nausea, vomiting, prostration, and abdominal cramps were the predominant symptoms (Table 1). The average duration of illness was approximately 26 hours. Questionnaires regarding food history were obtained from 72 ill persons and from 56 who remained asymptomatic. The mean incubation period for these 72 persons was 3 1/2 hours (Figure 1). The attack rates by food items for the persons that became ill were highest for those who ate ham (Table 2).

Five pre-cooked hams weighing approximately 12 pounds each had been cooked at the center on Saturday, March 20, at 375° for 3 1/2 hours. The hams were left in their pans and placed on a nearby counter top to cool for about 1 hour. Four of them were sliced, and the fifth ham was left covered, to be used if needed. The ham slices were then recovered and left on the counter overnight. The turkeys were also cooked on March 20 at 375° for 6 hours and left on the counter overnight.

On Sunday, the ham slices were placed near the heat of the stove and warmed in this manner until served. The turkeys were sliced, and the stock was used to make gravy and dressing. Commercially canned green beans and corn were used; ham skin was used to season the green beans. The ham, turkey, gravy, dressing, green beans, and corn were prepared at the center by one person. Four of the hams were sliced by a person other than the one who did the cooking. This man had open cuts on his fingers and thumbs. The fifth ham was sliced by still another person. All three cooks ate food prepared for the luncheon, and all remained asymptomatic. No specimens were obtained for culture.

Cultures of stool specimens from six ill persons yielded *Staphylococcus aureus.* Samples of ham, turkey, dressing, green beans, corn, potato salad, and lettuce were cultured, and all yielded *S. aureus.* All isolates were similar in that they were not lysed by available phages. Since it is extremely rare to culture *S. aureus* from some of this food, it was assumed that cross-contamination took place when the food samples were collected. Ham, with its high differential attack rate, was the most likely source of infection in this outbreak. *(Reported by Jessee White, Sanitarian, Hancock County Health Department, Hawesville, Kentucky; Calixto Hernandez, M.D., Director, Wallace B. Guerrant, Public Health Representative, Division of Epidemiology, Joseph W. Skaggs, D.V.M., Director, Clarence P. Marshall, Public Health Representative, Office of Communicable Diseases, Kentucky State Department of Health; and Carl Draper, Field Investigator, Food and Drug Administration, Louisville, Kentucky.)*

Table 1
Symptoms of 72 Ill Patients
Lewisport, Kentucky – March 21, 1971

Symptom	Number of Cases	Percent
Nausea	72	100
Vomiting	72	100
Diarrhea	72	100
Prostration	45	63
Cramps	42	58
Chills	33	46
Fever	5	7
Headache	4	6
Muscle Soreness	3	5

Figure 1
CASES OF STAPHYLOCOCCAL FOODBORNE DISEASE, BY TIME OF ONSET
LEWISPORT, KENTUCKY – MARCH 21, 1971

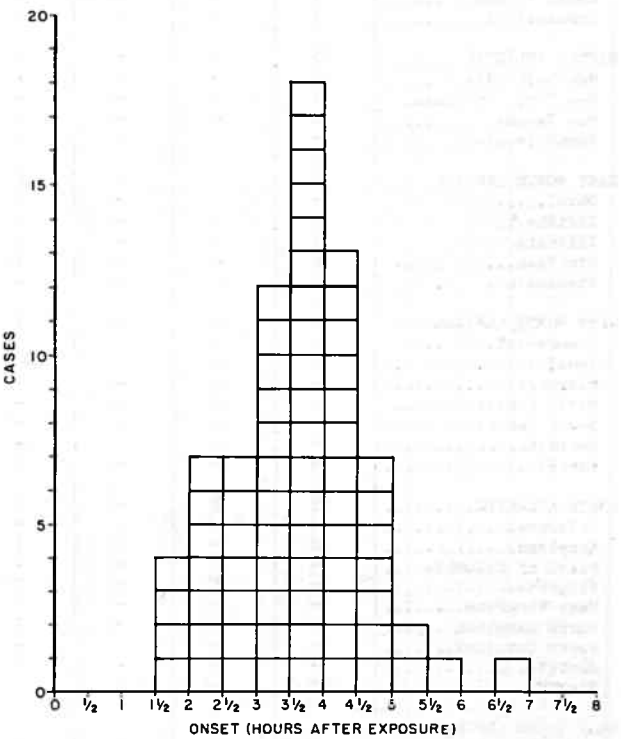

Table 2
Food Specific Attack Rates of Persons Attending Luncheon
Lewisport, Kentucky – March 21, 1971

Food Item	Ate			Did Not Eat		
	Ill	Not Ill	Attack Rate (Percent)	Ill	Not Ill	Attack Rate (Percent)
Ham	72	35	67	0	21	0
Turkey	50	45	52	22	11	67
Dressing	60	44	58	12	12	50
Gravy	38	29	57	34	27	56
Potatoes	13	11	54	59	45	57
Corn	43	28	61	29	28	51
Green Beans	49	35	58	23	21	54
Salad	57	45	56	15	11	58
Coffee	25	15	62	47	41	53
Tea	40	31	56	32	25	56
Pie	48	38	56	24	16	60

TABLE III. CASES OF SPECIFIED NOTIFIABLE DISEASES: UNITED STATES

FOR WEEKS ENDED

MAY 22, 1971 AND MAY 23, 1970 (20th WEEK)

AREA	ASEPTIC MENINGITIS	BRUCELLOSIS	DIPHTHERIA	ENCEPHALITIS			HEPATITIS			MALARIA	
				Primary including unsp. cases		Post Infectious	Serum	Infectious			
	1971	1971	1971	1971	1970	1971	1971	1971	1970	1971	Cum. 1971
UNITED STATES.....	73	2	2	92	20	11	124	1,328	1,093	57	1,463
NEW ENGLAND.....	6	–	–	2	1	2	17	96	106	1	46
Maine.....	–	–	–	–	–	–	3	3	4	–	3
New Hampshire*.....	–	–	–	–	–	–	–	7	6	–	1
Vermont.....	–	–	–	–	–	–	–	8	21	–	1
Massachusetts.....	1	–	–	–	1	–	3	42	54	1	33
Rhode Island.....	1	–	–	1	–	–	2	18	8	–	3
Connecticut.....	4	–	–	1	–	2	9	18	13	–	5
MIDDLE ATLANTIC.....	15	–	–	3	3	1	31	242	227	3	138
New York City.....	10	–	–	2	1	–	14	68	63	–	13
New York, Up-State...	2	–	–	–	–	1	3	43	51	3	37
New Jersey.....	3	–	–	–	–	–	14	52	38	–	59
Pennsylvania.....	–	–	–	1	2	–	–	79	75	–	29
EAST NORTH CENTRAL.....	7	–	–	8	6	–	6	232	169	7	71
Ohio.....	–	–	–	3	3	–	3	57	45	–	12
Indiana.*.....	–	–	–	3	–	–	–	13	15	–	5
Illinois.....	1	–	–	–	–	–	2	40	29	6	20
Michigan.....	6	–	–	2	3	–	1	92	72	1	27
Wisconsin.....	–	–	–	–	–	–	–	30	8	–	7
WEST NORTH CENTRAL.....	–	–	–	1	1	–	3	47	54	2	118
Minnesota*.....	–	–	–	–	–	–	2	4	16	–	16
Iowa*.....	–	–	–	–	–	–	–	6	9	–	15
Missouri.....	–	–	–	–	–	–	1	23	20	–	19
North Dakota.....	–	–	–	–	–	–	–	1	–	–	–
South Dakota.....	–	–	–	–	–	–	–	–	–	–	–
Nebraska.....	–	–	–	–	–	–	–	3	1	–	6
Kansas.....	–	–	–	1	1	–	–	10	8	2	62
SOUTH ATLANTIC.....	15	2	–	6	4	–	13	182	145	12	229
Delaware.....	–	–	–	–	–	–	–	2	5	–	1
Maryland.....	3	–	–	1	–	–	4	13	12	1	35
Dist. of Columbia....	–	–	–	–	–	–	–	–	–	1	2
Virginia.....	–	2	–	2	3	–	3	59	33	3	28
West Virginia.....	–	–	–	–	–	–	–	14	7	–	6
North Carolina.....	–	–	–	2	1	–	1	28	34	7	79
South Carolina.....	–	–	–	–	–	–	–	7	5	–	10
Georgia.....	–	–	–	–	–	–	–	31	26	–	43
Florida.....	12	–	–	1	–	–	5	28	23	–	25
EAST SOUTH CENTRAL.....	9	–	–	–	2	–	3	59	54	1	109
Kentucky.....	1	–	–	–	–	–	–	28	14	1	90
Tennessee.....	6	–	–	–	1	–	2	26	32	–	–
Alabama.....	2	–	–	–	1	–	1	1	3	–	15
Mississippi.....	–	–	–	–	–	–	–	4	5	–	4
WEST SOUTH CENTRAL.....	3	–	2	–	1	1	8	98	75	2	355
Arkansas.....	–	–	–	–	–	–	–	9	2	–	11
Louisiana.....	2	–	1	–	1	–	3	3	9	1	32
Oklahoma.....	–	–	–	–	–	–	–	14	10	–	50
Texas.....	1	–	1	–	–	1	5	72	54	1	262
MOUNTAIN.....	–	–	–	1	1	1	2	61	48	1	92
Montana.....	–	–	–	–	–	–	–	4	9	–	1
Idaho.....	–	–	–	–	–	–	–	6	1	1	4
Wyoming.....	–	–	–	–	–	–	–	–	2	–	1
Colorado.....	–	–	–	1	1	–	1	14	12	–	68
New Mexico.....	–	–	–	–	–	1	–	7	7	–	6
Arizona.....	–	–	–	–	–	–	–	18	9	–	8
Utah.....	–	–	–	–	–	–	1	11	5	–	3
Nevada.....	–	–	–	–	–	–	–	1	3	–	1
PACIFIC.....	18	–	–	71	1	6	41	311	215	28	305
Washington.....	2	–	–	–	–	–	–	27	20	–	1
Oregon.....	–	–	–	–	–	–	1	28	18	1	13
California.....	12	–	–	71	1	6	40	189	171	25	261
Alaska.....	–	–	–	–	–	–	–	3	5	–	4
Hawaii.....	4	–	–	–	–	–	–	64	1	2	26
Puerto Rico*.....	----	----	----	----	–	----	----	----	36	----	16
Virgin Islands.....	–	–	–	–	–	–	–	–	–	–	–

*Delayed reports: Aseptic meningitis: N.H. 1
Hepatitis, serum: Ind. delete 1
Hepatitis, infectious: Ind. delete 1, P.R. 25
Malaria: Minn. 4, Iowa 3, P.R. 3

TABLE III. CASES OF SPECIFIED NOTIFIABLE DISEASES: UNITED STATES

FOR WEEKS ENDED

MAY 22, 1971 AND MAY 23, 1970 (20th WEEK) - CONTINUED

AREA	MEASLES (Rubeola)			MENINGOCOCCAL INFECTIONS, TOTAL			MUMPS		POLIOMYELITIS		
		Cumulative			Cumulative			Cum.	Total	Paralytic	
	1971	1971	1970	1971	1971	1970	1971	1971	1971	1971	Cum. 1971
UNITED STATES	3,011	50,905	27,955	72	1,316	1,297	4,085	74,708	–	–	4
NEW ENGLAND	187	2,287	468	2	57	57	237	4,405	–	–	–
Maine.*	94	993	59	–	7	1	37	894	–	–	–
New Hampshire	15	117	19	–	8	5	62	564	–	–	–
Vermont	7	88	2	–	–	5	14	14	–	–	–
Massachusetts*	8	217	282	2	22	26	46	1,079	–	–	–
Rhode Island	11	153	48	–	2	3	37	951	–	–	–
Connecticut	52	719	58	–	18	17	41	903	–	–	–
MIDDLE ATLANTIC	374	5,426	3,435	21	174	227	308	4,861	–	–	–
New York City	112	2,930	603	15	39	56	49	1,011	–	–	–
New York, Up-State	35	364	156	3	43	45	NN	NN	–	–	–
New Jersey	95	769	1,361	1	42	84	119	1,407	–	–	–
Pennsylvania	132	1,363	1,315	2	50	42	140	2,443	–	–	–
EAST NORTH CENTRAL	810	10,334	6,662	11	143	149	1,737	30,640	–	–	–
Ohio	206	3,009	2,624	2	38	66	260	6,093	–	–	–
Indiana	173	1,849	215	6	14	16	208	4,299	–	–	–
Illinois	135	2,191	2,418	–	42	32	220	3,208	–	–	–
Michigan	154	1,176	818	3	39	30	526	7,115	–	–	–
Wisconsin	142	2,109	587	–	10	5	523	9,925	–	–	–
WEST NORTH CENTRAL	352	5,187	2,485	1	108	66	207	4,753	–	–	–
Minnesota	–	51	34	–	16	7	15	814	–	–	–
Iowa	74	1,927	106	–	7	9	133	2,567	–	–	–
Missouri	252	1,849	1,042	–	41	44	31	580	–	–	–
North Dakota	9	179	260	–	4	2	8	269	–	–	–
South Dakota	2	191	76	–	5	–	15	179	–	–	–
Nebraska	12	50	918	1	12	3	–	71	–	–	–
Kansas	3	940	49	–	23	1	5	273	–	–	–
SOUTH ATLANTIC	250	5,365	5,348	8	204	281	196	5,309	–	–	1
Delaware	2	31	225	–	1	3	13	112	–	–	–
Maryland	24	342	1,073	1	29	31	22	427	–	–	–
Dist. of Columbia	–	9	319	–	8	1	–	69	–	–	–
Virginia	42	963	1,439	–	16	24	28	637	–	–	–
West Virginia	26	348	210	–	3	5	61	1,382	–	–	–
North Carolina*	75	1,622	579	2	31	57	NN	NN	–	–	–
South Carolina*	29	742	404	–	16	31	12	670	–	–	–
Georgia	–	178	6	2	16	28	–	1	–	–	1
Florida	52	1,130	1,093	3	84	101	60	2,011	–	–	–
EAST SOUTH CENTRAL	171	6,543	679	6	118	98	306	5,912	–	–	–
Kentucky	83	3,137	344	2	37	34	75	2,049	–	–	–
Tennessee	34	628	239	4	43	39	173	3,044	–	–	–
Alabama	43	1,437	57	–	22	20	56	725	–	–	–
Mississippi	11	1,341	39	–	16	5	2	94	–	–	–
WEST SOUTH CENTRAL	411	10,632	6,332	4	113	183	315	5,939	–	–	1
Arkansas*	1	644	28	1	5	16	–	47	–	–	–
Louisiana	68	1,475	60	2	40	48	1	121	–	–	–
Oklahoma	15	686	333	–	6	11	6	158	–	–	–
Texas	327	7,827	5,911	1	62	108	308	5,613	–	–	1
MOUNTAIN	151	2,408	1,115	2	40	21	106	3,110	–	–	–
Montana	24	859	15	–	3	–	7	339	–	–	–
Idaho	9	185	19	1	5	4	1	108	–	–	–
Wyoming	–	79	8	–	2	1	19	243	–	–	–
Colorado	54	678	110	1	7	5	22	1,001	–	–	–
New Mexico	5	225	135	–	3	–	7	483	–	–	–
Arizona	37	256	793	–	8	9	44	846	–	–	–
Utah	22	123	19	–	9	2	6	90	–	–	–
Nevada	–	3	16	–	3	–	–	–	–	–	–
PACIFIC	305	2,723	1,431	17	359	215	673	9,779	–	–	2
Washington	32	709	172	–	16	32	261	4,421	–	–	1
Oregon	20	246	144	3	24	17	41	911	–	–	1
California	209	1,630	992	14	314	165	352	3,868	–	–	–
Alaska	20	29	57	–	–	–	2	66	–	–	–
Hawaii	24	109	66	–	5	1	17	513	–	–	–
Puerto Rico	—	183	746	—	1	3	—	601	—	—	–
Virgin Islands	–	5	6	–	–	1	–	10	–	–	–

* Delayed reports: Measles: Mass. delete 6, N.C. delete 1, S.C. 1, Ark. 329
Meningococcal infections: N.C. delete 2
Mumps: Me. 51, S.C. 14

TABLE III. CASES OF SPECIFIED NOTIFIABLE DISEASES: UNITED STATES

FOR WEEKS ENDED

MAY 22, 1971 AND MAY 23, 1970 (20th WEEK) - CONTINUED

AREA	RUBELLA		TETANUS		TULAREMIA		TYPHOID FEVER		TYPHUS FEVER TICK-BORNE (Rky. Mt. Spotted)		RABIES IN ANIMALS	
	1971	Cum. 1971	1971	Cum. 1971	1971	Cum. 1971	1971	Cum. 1971	1971	Cum. 1971	1971	Cum. 1971
UNITED STATES.....	1,805	28,191	2	32	2	31	7	98	8	25	77	1,802
NEW ENGLAND.....	117	1,196	–	1	–	–	1	6	–	–	5	148
Maine.....	12	222	–	–	–	–	–	–	–	–	5	140
New Hampshire.*.....	3	32	–	–	–	–	–	–	–	–	–	1
Vermont.....	6	59	–	–	–	–	–	–	–	–	–	7
Massachusetts.....	53	546	–	1	–	–	1	6	–	–	–	–
Rhode Island.....	8	65	–	–	–	–	–	–	–	–	–	–
Connecticut.....	35	272	–	–	–	–	–	–	–	–	–	–
MIDDLE ATLANTIC.....	161	1,876	–	4	–	–	1	14	–	1	–	73
New York City.....	30	348	–	4	–	–	1	6	–	–	–	–
New York, Up-State..	14	325	–	–	–	–	–	5	–	–	–	71
New Jersey.....	34	423	–	–	–	–	–	2	–	–	–	–
Pennsylvania.....	83	780	–	–	–	–	–	1	–	1	–	2
EAST NORTH CENTRAL....	336	5,828	–	4	–	1	–	9	–	1	10	150
Ohio.....	21	672	–	1	–	1	–	5	–	–	–	37
Indiana.....	152	1,268	–	1	–	–	–	1	–	–	4	36
Illinois.....	25	980	–	2	–	–	–	1	–	1	4	29
Michigan.....	91	1,945	–	–	–	–	–	2	–	–	2	27
Wisconsin.....	47	963	–	–	–	–	–	–	–	–	–	21
WEST NORTH CENTRAL....	73	2,287	–	3	–	4	1	1	–	–	24	434
Minnesota.....	26	236	–	1	–	–	–	–	–	–	6	86
Iowa.....	23	539	–	–	–	–	–	–	–	–	3	115
Missouri.....	6	1,048	–	2	–	4	1	1	–	–	6	78
North Dakota.....	2	84	–	–	–	–	–	–	–	–	5	78
South Dakota.....	4	90	–	–	–	–	–	–	–	–	1	31
Nebraska.....	9	70	–	–	–	–	–	–	–	–	–	–
Kansas.....	3	220	–	–	–	–	–	–	–	–	3	46
SOUTH ATLANTIC.....	275	2,308	1	9	1	13	1	20	7	14	4	199
Delaware.....	3	39	–	–	–	–	–	1	–	–	–	–
Maryland.....	6	93	–	1	–	3	–	3	–	1	–	–
Dist. of Columbia...	2	6	–	–	–	–	–	–	–	–	–	–
Virginia.....	13	136	–	–	–	5	–	1	1	1	–	51
West Virginia.....	17	357	–	–	–	–	1	3	–	–	1	81
North Carolina.....	1	29	–	–	–	4	–	3	6	9	–	–
South Carolina.....	10	395	–	–	–	–	–	–	–	3	–	–
Georgia.....	–	–	–	2	–	–	–	2	–	–	3	43
Florida.....	223	1,253	1	6	1	1	–	7	–	–	–	24
EAST SOUTH CENTRAL....	171	2,394	–	5	1	7	2	8	–	3	10	198
Kentucky.....	40	951	–	–	–	2	1	3	–	1	9	111
Tennessee.....	119	1,245	–	2	–	2	1	3	–	1	–	57
Alabama.....	12	133	–	2	–	2	–	2	–	–	1	30
Mississippi.....	–	65	–	1	1	1	–	–	–	1	–	–
WEST SOUTH CENTRAL....	128	3,815	–	1	–	4	1	9	1	5	11	416
Arkansas.....	–	301	–	–	–	1	1	1	–	–	–	41
Louisiana.....	4	273	–	–	–	1	–	5	–	–	1	18
Oklahoma.....	1	47	–	–	–	2	–	–	1	5	6	209
Texas.....	123	3,194	–	1	–	–	–	3	–	–	4	148
MOUNTAIN.....	47	1,629	1	1	–	2	–	2	–	1	1	14
Montana.....	–	105	–	–	–	1	–	–	–	–	–	–
Idaho.....	–	32	1	1	–	–	–	–	–	–	–	–
Wyoming.....	–	846	–	–	–	–	–	–	–	–	–	5
Colorado.....	12	197	–	–	–	–	–	–	–	1	–	–
New Mexico.....	10	188	–	–	–	–	–	–	–	–	1	4
Arizona.....	24	216	–	–	–	–	–	2	–	–	–	4
Utah.....	–	31	–	–	–	1	–	–	–	–	–	–
Nevada.....	1	14	–	–	–	–	–	–	–	–	–	1
PACIFIC.....	497	6,858	–	4	–	–	–	29	–	–	12	170
Washington.....	81	1,121	–	–	–	–	–	–	–	–	–	–
Oregon.....	28	524	–	–	–	–	–	–	–	–	–	–
California.....	382	5,081	–	4	–	–	–	28	–	–	9	137
Alaska.*.....	4	39	–	–	–	–	–	1	–	–	3	33
Hawaii.....	2	93	–	–	–	–	–	–	–	–	–	–
Puerto Rico.....	—	9	—	3	—	–	—	1	—	–	—	31
Virgin Islands.....	–	–	–	–	–	–	–	–	–	–	–	–

* Delayed reports: Rubella: N.H. 2
Typhoid fever: Alaska 1

Week No. 20

TABLE IV. DEATHS IN 122 UNITED STATES CITIES FOR WEEK ENDED MAY 22, 1971

(By place of occurrence and week of filing certificate. Excludes fetal deaths)

Area	All Causes		Pneumonia and Influenza All Ages	Under 1 year All Causes
	All Ages	65 years and over		
NEW ENGLAND:	680	380	44	29
Boston, Mass.	234	128	10	15
Bridgeport, Conn.	47	32	4	–
Cambridge, Mass.	27	18	9	1
Fall River, Mass.	25	15	–	1
Hartford, Conn.	44	18	1	2
Lowell, Mass.	28	17	3	1
Lynn, Mass.	15	7	–	–
New Bedford, Mass.	25	20	3	–
New Haven, Conn.	52	22	1	2
Providence, R. I.	51	25	4	4
Somerville, Mass.	14	8	–	–
Springfield, Mass.	46	22	6	1
Waterbury, Conn.	30	21	2	1
Worcester, Mass.	42	27	1	1
MIDDLE ATLANTIC:	3,230	1,939	91	134
Albany, N. Y.	57	35	2	2
Allentown, Pa.	35	24	1	1
Buffalo, N. Y.	156	96	4	13
Camden, N. J.	36	20	–	1
Elizabeth, N. J.	35	24	4	1
Erie, Pa.	38	24	1	–
Jersey City, N. J.	59	34	3	2
Newark, N. J.	82	23	–	20
New York City, N. Y.†	1,652	1,022	45	54
Paterson, N. J.	44	26	–	–
Philadelphia, Pa.	407	235	5	17
Pittsburgh, Pa.	181	97	9	8
Reading, Pa.	60	36	1	–
Rochester, N. Y.	118	77	7	4
Schenectady, N. Y.	24	9	–	1
Scranton, Pa.	46	32	1	3
Syracuse, N. Y.	89	57	–	2
Trenton, N. J.	56	32	3	2
Utica, N. Y.	19	12	1	2
Yonkers, N. Y.	36	24	4	1
EAST NORTH CENTRAL:	2,632	1,533	94	162
Akron, Ohio	65	29	–	6
Canton, Ohio	41	27	4	1
Chicago, Ill.	718	397	15	44
Cincinnati, Ohio	187	128	9	7
Cleveland, Ohio	214	134	9	9
Columbus, Ohio	136	74	12	11
Dayton, Ohio	106	59	2	5
Detroit, Mich.	340	191	8	27
Evansville, Ind.	36	24	1	–
Flint, Mich.	51	30	4	4
Fort Wayne, Ind.	61	36	4	6
Gary, Ind.	43	25	3	4
Grand Rapids, Mich.	69	47	3	3
Indianapolis, Ind.	147	80	2	15
Madison, Wis.	32	16	4	5
Milwaukee, Wis.	93	59	2	4
Peoria, Ill.	43	22	–	2
Rockford, Ill.	40	23	4	2
South Bend, Ind.	49	29	3	3
Toledo, Ohio	100	65	3	4
Youngstown, Ohio	61	38	2	–
WEST NORTH CENTRAL:	869	514	12	53
Des Moines, Iowa	74	45	–	7
Duluth, Minn.	22	16	–	1
Kansas City, Kans.	34	17	–	5
Kansas City, Mo.	158	89	4	10
Lincoln, Nebr.	36	19	–	1
Minneapolis, Minn.	99	59	1	6
Omaha, Nebr.	85	47	1	4
St. Louis, Mo.	234	137	4	12
St. Paul, Minn.	74	53	–	4
Wichita, Kans.	53	32	2	3
Las Vegas, Nev.*	17	5	–	1

Area	All Causes		Pneumonia and Influenza All Ages	Under 1 year All Causes
	All Ages	65 years and over		
SOUTH ATLANTIC:	1,199	623	41	50
Atlanta, Ga.	140	67	7	10
Baltimore, Md.	241	126	6	11
Charlotte, N. C.	68	33	–	1
Jacksonville, Fla.	74	33	1	5
Miami, Fla.	112	61	4	–
Norfolk, Va.	50	24	3	1
Richmond, Va.	87	45	1	3
Savannah, Ga.	30	17	3	2
St. Petersburg, Fla.	91	75	3	1
Tampa, Fla.	62	35	1	7
Washington, D. C.	203	89	10	6
Wilmington, Del.	41	18	2	3
EAST SOUTH CENTRAL:	648	333	28	35
Birmingham, Ala.	103	49	1	8
Chattanooga, Tenn.	45	29	5	1
Knoxville, Tenn.	40	25	2	–
Louisville, Ky.	112	54	3	9
Memphis, Tenn.	145	73	8	5
Mobile, Ala.	57	25	2	1
Montgomery, Ala.	34	14	–	1
Nashville, Tenn.	112	64	7	10
WEST SOUTH CENTRAL:	1,112	561	35	78
Austin, Tex.	27	11	3	1
Baton Rouge, La.	33	20	2	–
Corpus Christi, Tex.	30	19	–	1
Dallas, Tex.	162	77	3	14
El Paso, Tex.	33	13	3	9
Fort Worth, Tex.	83	34	1	4
Houston, Tex.	218	93	7	13
Little Rock, Ark.	63	41	2	4
New Orleans, La.	164	87	1	11
Oklahoma City, Okla.	72	35	3	8
San Antonio, Tex.	117	60	3	7
Shreveport, La.	52	34	4	3
Tulsa, Okla.	58	37	3	3
MOUNTAIN:	469	271	29	14
Albuquerque, N. Mex.	74	36	9	2
Colorado Springs, Colo.	28	14	7	2
Denver, Colo.	122	65	2	4
Ogden, Utah	19	12	4	–
Phoenix, Ariz.	106	63	–	5
Pueblo, Colo.	18	13	5	–
Salt Lake City, Utah	53	35	1	1
Tucson, Ariz.	49	33	1	–
PACIFIC:	1,539	945	23	58
Berkeley, Calif.	15	13	–	–
Fresno, Calif.	49	26	2	3
Glendale, Calif.	20	12	–	1
Honolulu, Hawaii	55	25	–	5
Long Beach, Calif.	98	65	2	–
Los Angeles, Calif.	442	276	5	16
Oakland, Calif.	72	40	1	4
Pasadena, Calif.	34	23	–	–
Portland, Oreg.	115	94	1	5
Sacramento, Calif.	52	31	1	3
San Diego, Calif.	138	86	–	3
San Francisco, Calif.	178	92	2	5
San Jose, Calif.	47	29	3	3
Seattle, Wash.	131	77	4	5
Spokane, Wash.	42	26	1	3
Tacoma, Wash.	51	30	1	2
Total	12,378	7,099	397	613
Expected Number	12,732	7,333	436	514
Cumulative Total (includes reported corrections for previous weeks)	269,420	156,754	11,002	11,909

*Mortality data are being collected from Las Vegas, Nev., for possible inclusion in this table, however, for statistical reasons, these data will be listed only and not included in the total, expected number, or cumulative total, until 5 years of data are collected.

† Delayed Report for Week ended May 15, 1971

EPIDEMIOLOGICAL NOTES AND REPORTS

FOLLOW-UP ON PLAGUE-POSITIVE POOL OF RAT FLEAS – Tacoma, Washington

On Jan. 27, 1971, the Ecological Investigations Program, CDC, made a presumptive identification, later confirmed, of *Yersinia pestis* on an isolate recovered from a pool of 50 fleas from 23 Norway rats *(Rattus norvegicus)* trapped in Tacoma, Washington (MMWR, Vol. 20, No. 5). As a consequence, trapping was intensified in the area where the positive flea pool was found, and port and city rat surveys were intensified in both Tacoma and neighboring Seattle. Ectoparasite control and removal of rat shelters were initiated in the involved area of Tacoma and are continuing.

Observation and trapping in the south Tacoma area revealed a diffuse Norway rat population living in or near blackberry thickets and trash rather than in occupied buildings. Deer mice, house mice, and meadow mice mingled with the Norway rats; black rats were occasionally trapped. Rodent food sources were few; local small infestations of Norway rats were associated with dog feeding, poultry feeding, and occasionally inadequate garbage containers. Food, rather than shelter, appears to be a primary limiting factor to the rat population. None of the 247 rodent tissues examined were found to be positive for plague.

Fleas taken from the Norway rats were predominantly *Nosopsyllus fasciatus,* the northern rat flea, with a mixture of wild rodent fleas normally associated with deer mice *(Peromyscus maniculatus)* and voles *(Microtus* species). No oriental rat fleas *(Xenopsylla cheopis)* were collected. Since January 1971, 234 flea pools from the Tacoma area have been examined, and one additional plague-positive flea *(N. fasciatus)* was found.

Since 1944, Tacoma has conducted an intensive plague surveillance program which consists of systematically trapping rats throughout the city and submitting fleas to CDC for examination for evidence of *Y. pestis* infection. In 1970, 7,552 fleas from 7,247 rodents, including 5,566 *Rattus* species *(R. norvegicus* and *R. rattus),* and 8,359 fleas from wild rodent nests were examined. The intensity of this surveillance program provides a sound basis to conclude that epizootic plague is not occurring in Tacoma and has not occurred there since 1944.

(Reported by Harlan P. McNutt, M.D., Director, Tacoma-Pierce County Health Department; Roy Russell, M.S.P.H., Advisory Sanitarian, Chemical and Physical Hazards Section, Byron J. Francis, M.D., Chief, Office of Epidemiology, Washington State Division of Health; the Zoonoses Section, Ecological Investigations Program, CDC, Fort Collins, Colorado; and the Foreign Quarantine Program, CDC.)

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The data in this report are provisional, based on weekly telegraphs to CDC by state health departments. The reporting week concludes at close of business on Friday; compiled data on a national basis are officially released to the public on the succeeding Friday.

In addition to the established procedures for reporting morbidity and mortality, the editor welcomes accounts of interesting outbreaks or case investigations of current interest to health officials.

Address all correspondence to

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